

Web Appendix

The Role of Equity Funds in the Financial Crisis Propagation

Supplement not for Journal Publication

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Table A1: Pre-Crisis Performance Differences Between Exposed and Non-Exposed Funds

Of the U.S. funds which we were able to match with the Lipper database in June 2007, we labeled 403 funds as “exposed” due to large fund return losses from financial stock investments and 2391 as “non-exposed” funds. For 284 (70.5%) of the exposed funds and 1721 (72.0%) of the non-exposed funds, we are able to obtain a complete 3 year pre-crisis performance history of monthly total fund returns, from July 2003 to June 2006. We report a mean and median test of performance differences across the two fund groups based on (i) unadjusted raw fund returns, and (ii) fund alphas for a four U.S. factor model (market, BMS, HML, and momentum).

		Exposed Funds			Non-Exposed Funds			Difference Tests	
		Obs.	Mean	Median	Obs.	Mean	Median	Mean	Median
			$\times 100$	$\times 100$		$\times 100$	$\times 100$	$T - stat$	χ^2
(i)	Raw returns	284	1.203	1.123	1,721	1.267	1.203	1.81	6.42
(ii)	α for four U.S. factors	284	0.013	-0.037	1,721	0.043	-0.011	1.30	2.34

Table A2: Quantile Regressions for Cumulative Stock Return Regressions with Liquidity Controls

Reported are quantile regressions for the cumulative (weekly) stock returns starting from June 29, 2007 to November 7, 2008 and February 27, 2009. The dummy variable $DExp^s$ (marking the 15% of stocks with the highest exposure to distressed funds) and the dummy $DFsh^s$ (marking the 15% of stocks with the highest funds share) are the same as in Table 2. The dummy variable $DLiq^s$ marks the 15% most liquid stocks, where the liquidity measure is calculated as $\ln(1 - ZR)$ and ZR is the proportion of zero daily returns. The last two columns use $\ln(1 - ZR)$ instead of $DLiq^s$ as the liquidity control variable. Their explanatory power is reported for the 25%, 50%, 75%, 90%, and 95% quantile of the cumulative stock returns. All regressions include industry fixed effects. Reported in brackets are the t-values based on bootstrapped standard errors.

Liquidity Control	Cumulative Risk Adjusted Returns					
	U.S. Stocks		U.S. Stocks		U.S. Stocks	
	Nov. 2008	Feb. 2009	Nov. 2008	Feb. 2009	Nov. 2008	Feb. 2009
	none		$DLiq^s$		$\ln(1 - ZR)$	
Quantile 25%						
$DExp^s$	0.066 [1.82]	0.037 [1.03]	0.040 [1.12]	0.024 [0.80]	0.074 [2.39]	0.052 [1.50]
$DFsh^s$	0.184 [5.64]	0.188 [5.61]	0.078 [2.21]	0.072 [3.47]	0.177 [5.50]	0.188 [7.39]
$DLiq^s$ or $\ln(1 - ZR)$			0.187 [4.75]	0.184 [6.71]	-0.008 [-0.22]	-0.026 [-0.99]
Quantile 50%						
$DExp^s$	0.009 [0.19]	-0.007 [-0.14]	-0.041 [-1.07]	-0.051 [-0.95]	0.017 [0.48]	0.003 [0.08]
$DFsh^s$	0.202 [4.09]	0.254 [6.01]	0.063 [1.36]	0.096 [2.61]	0.206 [5.74]	0.255 [6.06]
$DLiq^s$ or $\ln(1 - ZR)$			0.260 [7.79]	0.317 [6.74]	-0.028 [-0.83]	-0.044 [-1.20]
Quantile 75%						
$DExp^s$	-0.157 [-2.24]	-0.236 [-2.61]	-0.235 [-3.13]	-0.265 [-2.93]	-0.144 [-3.02]	-0.228 [-2.35]
$DFsh^s$	0.075 [0.92]	0.316 [3.78]	0.038 [0.58]	0.157 [1.62]	0.115 [2.09]	0.357 [3.95]
$DLiq^s$ or $\ln(1 - ZR)$			0.195 [2.83]	0.331 [3.87]	-0.182 [-1.65]	-0.176 [-1.38]
Quantile 90%						
$DExp^s$	-0.696 [-4.21]	-0.829 [-7.72]	-0.696 [-4.11]	-0.874 [-3.76]	-0.659 [-4.27]	-0.768 [-4.91]
$DFsh^s$	-0.056 [-0.31]	0.188 [1.02]	0.029 [0.17]	0.184 [0.68]	0.215 [1.67]	0.302 [1.67]
$DLiq^s$ or $\ln(1 - ZR)$			-0.102 [-0.63]	0.059 [0.30]	-1.018 [-1.69]	-0.344 [-0.82]
Quantile 95%						
$DExp^s$	-1.140 [-4.23]	-1.552 [-4.91]	-0.899 [-3.33]	-1.552 [-4.25]	-0.968 [-4.03]	-1.465 [-4.51]
$DFsh^s$	-0.438 [-1.39]	-0.058 [-0.21]	-0.190 [-0.62]	0.113 [0.34]	0.108 [0.43]	0.266 [0.86]
$DLiq^s$ or $\ln(1 - ZR)$			-0.608 [-1.92]	-0.173 [-0.40]	-2.600 [-2.40]	-0.939 [-0.84]
<i>Obs.</i>	3,562	3,525	3,540	3,504	3,540	3,504
Q25% <i>Pseudo R</i> ²	0.058	0.049	0.063	0.055	0.058	0.049
Q50% <i>Pseudo R</i> ²	0.042	0.044	0.047	0.050	0.042	0.044
Q75% <i>Pseudo R</i> ²	0.036	0.043	0.038	0.045	0.038	0.043
Q90% <i>Pseudo R</i> ²	0.083	0.113	0.084	0.112	0.090	0.113
Q95% <i>Pseudo R</i> ²	0.161	0.195	0.159	0.196	0.177	0.200

Table A3: OLS Regressions for Cumulative Stock Returns with Added Risk Factors

Panel A reproduces the baseline results for U.S. stocks reported in Table 4. Panels B and C include additional control variables of domestic and international market betas and size betas, respectively. Panel D controls for all 8 betas.

Panel A: Baseline Results for U.S. Stocks (Table 4)					
	Cumulative Risk Adjusted Returns (by)				
	Dec. 2007	June 2008	Dec. 2008	June 2009	Dec. 2009
$DExp^s(2007/2)$	-0.118				
	[-4.59]				
$DExp^s$		-0.127	-0.169	-0.084	0.001
		[-3.44]	[-2.82]	[-1.85]	[0.02]
$DFsh^s$	0.079	0.167	0.150	0.186	0.174
	[3.04]	[4.34]	[2.28]	[3.84]	[3.69]
<i>Obs.</i>	3,813	3,722	3,612	3,494	3,269
<i>Adj.R</i> ²	0.026	0.050	0.012	0.028	0.037
Added Risk Factors					
MKT_t^{Dom}, MKT_t^{Int}	no	no	no	no	no
SMB_t^{Dom}, SMB_t^{Int}	no	no	no	no	no
HML_t^{Dom}, HML_t^{Int}	no	no	no	no	no
MOM_t^{Dom}, MOM_t^{Int}	no	no	no	no	no
Panel B: Market Betas as Added Controls					
	Cumulative Risk Adjusted Returns (by)				
	Dec. 2007	June 2008	Dec. 2008	June 2009	Dec. 2009
$DExp^s(2007/2)$	-0.121				
	[-4.95]				
$DExp^s$		-0.127	-0.146	-0.066	0.013
		[-3.50]	[-2.71]	[-1.64]	[0.34]
$DFsh^s$	0.054	0.149	0.153	0.125	0.141
	[2.14]	[3.91]	[2.53]	[2.86]	[3.08]
<i>Obs.</i>	3,813	3,722	3,612	3,494	3,269
<i>Adj.R</i> ²	0.098	0.078	0.158	0.244	0.139
Added Risk Factors					
MKT_t^{Dom}, MKT_t^{Int}	yes	yes	yes	yes	yes
SMB_t^{Dom}, SMB_t^{Int}	no	no	no	no	no
HML_t^{Dom}, HML_t^{Int}	no	no	no	no	no
MOM_t^{Dom}, MOM_t^{Int}	no	no	no	no	no

Table A3(Continued)

Panel C: SMB Betas as Added Controls					
	Cumulative Risk Adjusted Returns (by)				
	Dec. 2007	June 2008	Dec. 2008	June 2009	Dec. 2009
$DExp^s(2007/2)$	-0.079				
	[-3.28]				
$DExp^s$		-0.092	-0.162	-0.125	-0.041
		[-2.60]	[-2.73]	[-2.83]	[-0.98]
$DFsh^s$	0.126	0.224	0.275	0.221	0.207
	[5.18]	[6.03]	[4.42]	[4.73]	[4.62]
<i>Obs.</i>	3,813	3,722	3,612	3,494	3,269
<i>Adj.R</i> ²	0.134	0.111	0.090	0.110	0.115
Added Risk Factors					
MKT_t^{Dom}, MKT_t^{Int}	no	no	no	no	no
SMB_t^{Dom}, SMB_t^{Int}	yes	yes	yes	yes	yes
HML_t^{Dom}, HML_t^{Int}	no	no	no	no	no
MOM_t^{Dom}, MOM_t^{Int}	no	no	no	no	no

Panel D: Market, SMB, HML, and MOM Betas as Added Controls					
	Cumulative Risk Adjusted Returns (by)				
	Dec. 2007	June 2008	Dec. 2008	June 2009	Dec. 2009
$DExp^s(2007/2)$	-0.087				
	[-4.51]				
$DExp^s$		-0.089	-0.120	-0.092	-0.055
		[-3.07]	[-2.47]	[-2.43]	[-1.55]
$DFsh^s$	0.086	0.148	0.116	0.079	0.052
	[4.34]	[4.69]	[2.16]	[1.84]	[1.26]
<i>Obs.</i>	3,813	3,722	3,612	3,494	3,269
<i>Adj.R</i> ²	0.414	0.384	0.356	0.342	0.330
Added Risk Factors					
MKT_t^{Dom}, MKT_t^{Int}	yes	yes	yes	yes	yes
SMB_t^{Dom}, SMB_t^{Int}	yes	yes	yes	yes	yes
HML_t^{Dom}, HML_t^{Int}	yes	yes	yes	yes	yes
MOM_t^{Dom}, MOM_t^{Int}	yes	yes	yes	yes	yes

Table A4: Fund Ownership Distribution by Stock Type

We report the distribution of the number of U.S. funds holding a U.S. stock (columns (1)-(3)), an exposed U.S. stock (columns (4)-(6)), or a non-exposed U.S. stock (columns (7)-(9)) in June 2007. We distinguish between all funds owners, exposed funds owners, and non-exposed funds owners, respectively. Fund exposure is measured by the return loss of a fund due to ownership in financial stocks over the one-year period from July 2007 to June 2008. We exclude from the sample funds which invest more than 75% of capital in the banking sector. The 15% of funds with the largest fund exposure are marked as exposed funds and the remaining 85% as non-exposed funds.

	All U.S. Stocks			Exposed U.S. Stocks			Non-Exposed U.S. Stocks		
	All Fund Owners	Exp. Fund Owners	Non-Exp. Fund Owners	All Fund Owners	Exp. Fund Owners	Non-Exp. Fund Owners	All Fund Owners	Exp. Fund Owners	Non-Exp. Fund Owners
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Percentile									
p1	1	0	1	6	1	5	1	0	1
p5	1	0	1	35	4	30	1	0	1
p10	2	0	2	66	6	57	1	0	1
p25	10	1	9	122	11	107	5	0	5
p50	56	5	51	187	20	166	21	2	19
p75	164	14	149	315	36	273	70	5	64
p90	290	32	260	490	82	419	148	10	137
p95	428	59	370	626	111	529	203	13	191
p99	738	141	625	996	219	802	312	25	299
N	4,366	4,366	4,366	1,439	1,439	1,439	2,927	2,927	2,927
Mean	115	14	101	244	34	210	51	4	47
SD	156.5	28.1	132.9	198.1	41.7	163.6	70.5	5.2	66.6
Skewness	2.8	5.2	2.5	2.0	3.3	1.9	2.4	2.7	2.4
Kurtosis	14.6	41.2	12.5	9.0	17.9	8.3	10.3	14.2	10.5

Table A5: OLS Regressions for Cumulative Stock Returns with Additional Control Variables

Using the U.S. results in Table 4 as the baseline model (Panel A), Panel B includes additional control variables of dividend yield and the price-to-book ratio. Panel C controls for the receivable-to-sales ratio. Panel D controls for dividend yield, the price-to-book ratio, and the receivable-to-sales ratio.

Panel A: Baseline Results for U.S. Stocks (Table 4)					
	Cumulative Risk Adjusted Returns (by)				
	Dec. 2007	June 2008	Dec. 2008	June 2009	Dec. 2009
<i>DExp^s</i> (2007/2)	-0.118 [-4.59]				
<i>DExp^s</i>		-0.127 [-3.44]	-0.169 [-2.82]	-0.084 [-1.85]	0.001 [0.02]
<i>DFsh^s</i>	0.079 [3.04]	0.167 [4.34]	0.150 [2.28]	0.186 [3.84]	0.174 [3.69]
<i>Obs.</i>	3,813	3,722	3,612	3,494	3,269
<i>Adj.R²</i>	0.026	0.050	0.012	0.028	0.037
Panel B: Control for Dividend Yield and Price-to-Book Ratio					
	Cumulative Risk Adjusted Returns (by)				
	Dec. 2007	June 2008	Dec. 2008	June 2009	Dec. 2009
<i>DExp^s</i> (2007/2)	-0.113 [-4.14]				
<i>DExp^s</i>		-0.108 [-2.81]	-0.169 [-2.72]	-0.070 [-1.47]	0.002 [0.05]
<i>DFsh^s</i>	0.087 [3.18]	0.169 [4.05]	0.221 [3.20]	0.235 [4.58]	0.219 [4.42]
Dividend Yield	-0.226 [-0.83]	-0.401 [-1.31]	-0.435 [-1.93]	-0.036 [-0.15]	0.035 [0.16]
Price-to-Book	0.001 [1.62]	0.000 [0.41]	0.001 [1.05]	0.002 [3.06]	0.000 [0.30]
<i>Obs.</i>	2,975	2,898	2,821	2,773	2,664
<i>Adj.R²</i>	0.039	0.079	0.028	0.047	0.069

Table A5(Continued)

Panel C: Control for the Receivable-to-Sales Ratio

	Cumulative Risk Adjusted Returns (by)				
	Dec. 2007	June 2008	Dec. 2008	June 2009	Dec. 2009
<i>DExp^s</i> (2007/2)	-0.119 [-4.45]				
<i>DExp^s</i>		-0.117 [-3.10]	-0.181 [-2.99]	-0.086 [-1.84]	-0.011 [-0.26]
<i>DFsh^s</i>	0.090 [3.33]	0.170 [4.17]	0.232 [3.41]	0.246 [5.00]	0.234 [4.92]
Receivable-to-Sales	-0.001 [-2.14]	-0.002 [-3.14]	-0.004 [-3.99]	-0.001 [-1.24]	-0.001 [-1.56]
<i>Obs.</i>	3,084	3,006	2,925	2,856	2,740
<i>Adj.R²</i>	0.036	0.073	0.027	0.052	0.070

Panel D: Control for Dividend Yield, Price-to-Book, and Receivable-to-Sales

	Cumulative Risk Adjusted Returns (by)				
	Dec. 2007	June 2008	Dec. 2008	June 2009	Dec. 2009
<i>DExp^s</i> (2007/2)	-0.117 [-4.24]				
<i>DExp^s</i>		-0.111 [-2.88]	-0.176 [-2.83]	-0.079 [-1.64]	-0.007 [-0.15]
<i>DFsh^s</i>	0.082 [2.97]	0.165 [3.93]	0.217 [3.13]	0.237 [4.62]	0.228 [4.64]
Dividend Yield	-0.227 [-0.82]	-0.404 [-1.32]	-0.443 [-1.93]	-0.031 [-0.13]	0.046 [0.22]
Price-to-Book	0.001 [1.72]	0.000 [0.52]	0.001 [1.41]	0.002 [3.15]	0.000 [0.50]
Receivable-to-Sales	-0.001 [-2.11]	-0.002 [-3.53]	-0.004 [-4.87]	-0.002 [-2.04]	-0.001 [-1.60]
<i>Obs.</i>	2,918	2,844	2,769	2,721	2,616
<i>Adj.R²</i>	0.039	0.080	0.032	0.051	0.073